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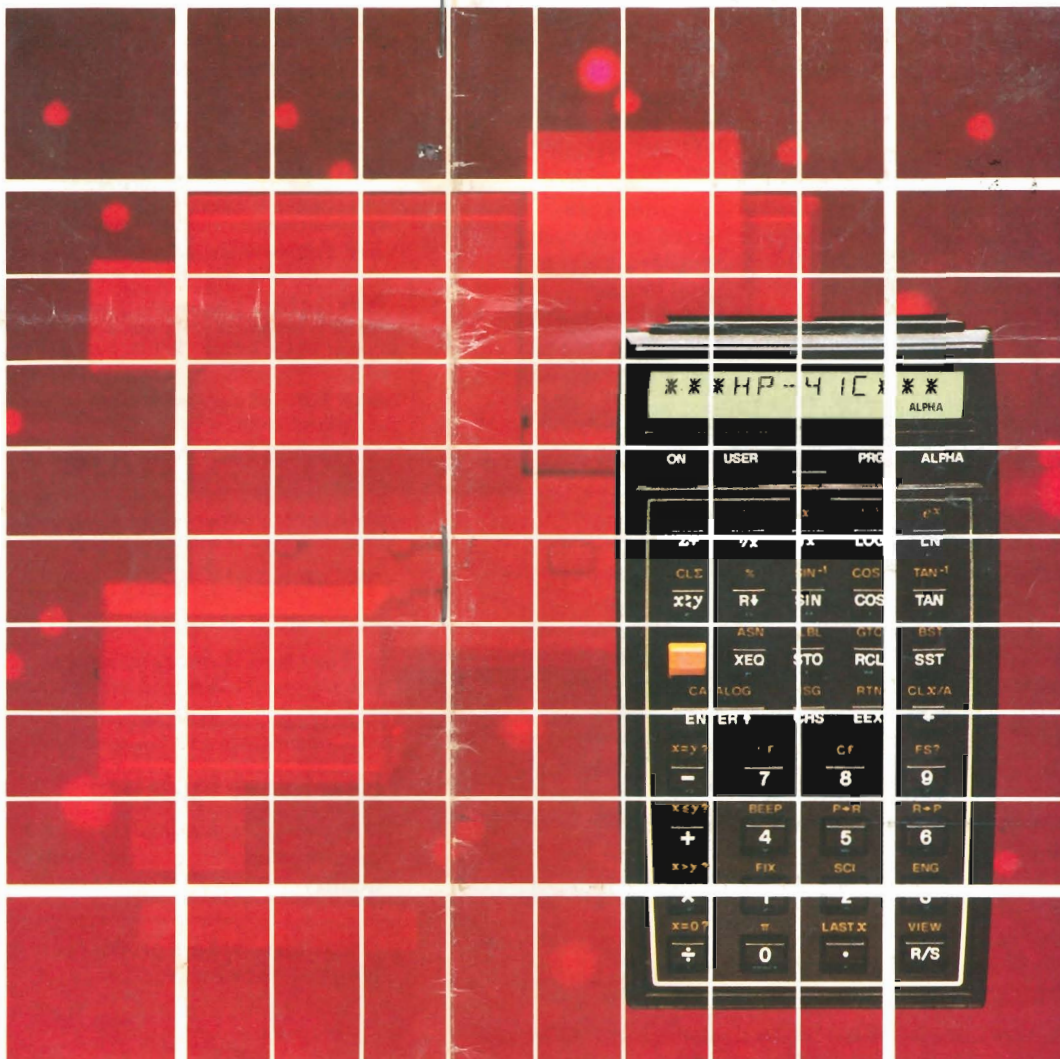
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336 *Comp.*
51-30 *M. mode*
245 *C-Reader*
The HP-41C
from Hewlett-Packard.

A calculator.
A system.
A whole new standard.



The HP-41C is the most powerful personal calculator Hewlett-Packard has ever designed.

It is fully programmable with incredible power that can expand to over 2,000 lines of program memory. Or 319 registers for data storage. Or any mix of data storage and program memory you choose.*

While the HP-41C is our most-powerful-ever personal calculator, it is remarkably easy to use. It communicates in friendly English, so operation is simple even for the novice. Status annunciators remind you of operating modes and battery life. You can name a program, then call it up by name for execution. And the straightforward keystroke programming and time-proven RPN logic system slice with ease through the most difficult problems.

In addition, the HP-41C can switch from a pre-defined calculator to a user-customized instrument, allowing you to create a highly personal calculator precisely matched to your own special needs.

The HP-41C alone is an extraordinary calculating instrument. And it can also be the heart of a remarkable personal calculating system that adapts to your computational requirements.

In combination with peripherals and modules designed specifically for the HP-41C, you can develop an expanded system that matches virtually any growth requirement. For example:

You can expand your programming power with plug-in Memory Modules that can increase your memory capacity five times.

With the "extra smart" plug-in Card Reader, you can easily store your own personal program library on magnetic cards for repeated use with your own system or another HP-41C card reader. And HP-67/97 recorded cards are compatible.

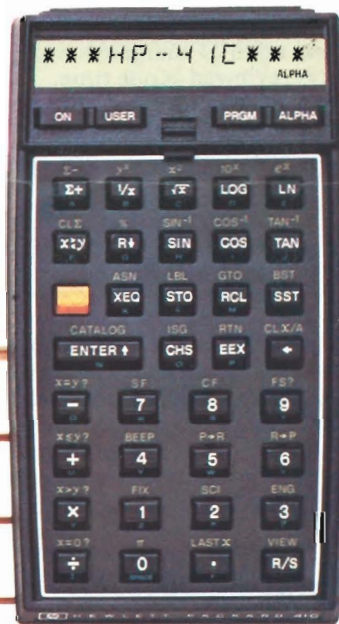
The Printer is a complete alphanumeric, plotting printer with three operational modes for documenting your calculations and program listings and for generating hard-copy and graphic outputs.

The Wand lets you quickly load long programs by reading bar codes printed on paper.

You can acquire preprogrammed answers to hundreds of complex problems with plug-in Application Modules related to your particular discipline or field.

But the HP-41C is more than that. It includes ease-of-use features to make information more accessible, applications support to provide professional preprogrammed solutions, a staggering number of features and functions, comprehensive owner's manuals and support literature for fast learning and easy reference. These features, combined with traditional Hewlett-Packard quality, provide a calculator designed totally with your needs in mind.

The HP-41C from Hewlett-Packard. A calculator. A system. A whole new standard.



*For a detailed discussion of memory capacity for either registers or program lines, see appendix D of owners manual.

The Calculator

The HP-41C incorporates the latest in calculator technology to give you a powerhouse of features and functions in a convenient pocket-sized model. Communication features let you input to the calculator in English and receive output the same way. Customization features let you personalize the calculator for special applications. Continuous Memory saves your programs and data for later use. Programming features have been designed for more power, more flexibility, and more ease of use. And the HP-41C uses time-proven RPN logic, the most natural, efficient and consistent system for solving problems on a professional calculator.

Communicating with the calculator

The HP-41C communicates with more than numbers. You can type in any combination of numbers and letters up to 24 characters wide, with up to 12 characters reviewed at one time.



A complete system of status annunciators, which appear in a special area of the display, also helps to keep you firmly in control of the HP-41C. You know whether the next key you press will be executed or "remembered" as a program instruction; you see whether you're keying in numbers or alphabetic characters. You can tell at a glance the condition of program flags, trigonometric modes, and battery life.



The display even shows you whether the shift key has been pressed. And to help you operate the HP-41C more easily, a wide variety of comprehensive messages pinpoint calculation errors—in English! These messages appear in the display and

aid you in tracking down calculation errors or program "bugs."



Besides displaying status annunciators and alphabetic strings, you can show numbers in fixed, scientific and engineering notation at your command. And you have the choice of automatic commas or decimal points to make large numbers more readable. To make all this communication easier on your eyes, the HP-41C utilizes a high-resolution liquid-crystal display (LCD) that is easy to read in the office or in the field in bright sunlight.

The "beeper" provides aural feedback with ten different tones that let you signal the end of a program or a data entry point without monitoring the display.

Customize the HP-41C to your own design

The HP-41C comes with 58 popular functions on the keyboard, ready to help you solve scientific and mathematics problems. But, in fact, over 130 separate operations comprise the total function library of the HP-41C. And you can assign any of these functions or any program you have written to any key—with a few keystrokes you can create a "personalized" custom calculator for your own special applications. In Normal mode, the calculator operates using its normal keyboard. But the press of a button to User mode provides each key with a new function possibility—a function or program you assign.

To help with this customizing feature, each HP-41C comes with two keyboard overlays and a set of user labels. You simply mark on the overlay, above each key, the new assigned function.

To further aid your customizing requirements the HP-41C offers maximum flexibility in memory allocation. You can divide its registers between data storage and program memory in any way you choose. When the calculator first "wakes up," it is equipped with 17 data storage registers and up to 300 lines of program memory. But by pressing a few keys you can change the allocation anytime you wish. You can even store alphanumeric strings of up to six characters in any storage register.

HP Computer Museum
www.hpmuseum.net

For research and education purposes only.

Continuous Memory saves everything

The HP-41C is equipped with Continuous Memory that preserves everything from stored data to user-defined keyboard assignments, even though the calculator is turned off. As a result you can program frequently-needed calculations once, then perform them as often as necessary without the bother or lost time caused by reentering your program.

Even with its dozens of new features and functions, the HP-41C uses so little power that a set of throwaway batteries provided with the calculator will last for many months of daily use.

A unique combination of programming ease and sophistication

You can maintain more, and longer programs in the HP-41C than you ever thought possible. Each program is autonomous. You can call it by name, run it, edit it, even wipe it out completely—all without affecting other programs in the calculator.

Programming the HP-41C is so simple you'll write programs immediately. You merely switch to Program Mode, give the program a name—an easy-to-remember alphabetic label—then press keys on the calculator in the same order you'd use to solve a problem or perform an operation. That's all there is to it. The HP-41C remembers those keystrokes as a program.

Once back in Normal mode, you simply call the program by name and the entire series of keystrokes is executed at your command. No complicated programming languages to remember. No elaborate "start-up" procedures to memorize.

When you're ready to write a new program, in Program mode the LCD display shows you how much unused program memory is left, then shows you program information in handy line form.

Besides providing status and program information, the HP-41C display yields answers. And you'll find that a running program can halt or pause to produce numerical answers, alphanumeric strings, even labeled data and results.

Local and Global Branching

Each program in the HP-41C is autonomous with up to 99 local labels available for addressing, sub-routining, or defining parts of a program. Independent programs are interactive, and by using global labels, you can summon one program or branch to a subroutine (up to six labels) from another program.

Editing is fast and easy

The HP-41C contains several editing features to help you correct and alter your programs. You can go to any program without execution, as well as to any local label or line number within a program. Single-step or back-step through a program and examine each line without execution, or execute any program one step at a time with the single-step function. You can also insert or delete a program line at any point—or if you desire, delete a specified number of program lines.

Valuable conditional instructions

Ten comparison tests give your HP-41C decision-making power. A program can automatically compare numerical data, constants or results and alter execution based on the outcome of the comparison. Two alphabetic strings may be tested for equality or inequality.

Flags are another decision-making feature of the HP-41C. In programming, a flag can be tested, and program execution altered based on the outcome of the test. The HP-41C contains 56 flags, giving your programs unheard-of control over and response to conditions in your programs and even the calculator itself.

Specific loop control

Using the ISG (increment, skip if greater than) and DSE (decrement, skip if equal) instructions, you can easily control looping in your HP-41C programs. These functions can specify both the number of times through a loop and the loop limit—as well as any interval (up to 99) for incrementing or decrementing.

Flexible indirect addressing

The HP-41C has 25 separate operations which, in addition to their normal operation, can also be controlled indirectly. This feature allows condition alterations while running, just like sophisticated computers.

Indirectly controlled functions include data storage and recall, storage register arithmetic, flags, display format, loops, and more. You can indirectly address entire programs, or subroutines or any register of the automatic memory stack, and more. Any register can be used as the indirect control register.

The System

Standing alone, the HP-41C is a powerful programmable problem-solving calculator. But by adding optional plug-in peripherals and modules you can expand the capabilities of the HP-41C to keep pace with your growing computational requirements.

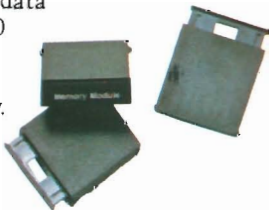
These options give the HP-41C increased flexibility, too. You can plug in any number up to four, in any combination that you need. Each quick-connect peripheral and module is self-contained, with its own set of functions that is added to the calculator's existing function library when plugged in. Completely portable, these options increase the utility and flexibility of the HP-41C calculating system many times over.

Memory Modules

These handy Memory Modules can actually quintuple the HP-41C calculator's memory. You simply plug in as many Memory Modules as you need—up to four—to increase data storage and program memory.

A single module contains 64 data storage registers, or up to 400 lines of program memory—or any combination of data storage and program memory. And like the calculator itself, the Memory Modules have Continuous Memory.

HP-41C Memory Modules are a low-cost way of expanding your computational capabilities to meet your increasing application needs and programming expertise.



Card Reader

The HP-41C Card Reader is a valuable option that lets you save programs and alphabetic and numerical data on magnetic cards. Merely pass the appropriate magnetic card through the card reader and all the information on the card is instantly placed in the HP-41C, ready for use.

The "extra-smart" card reader quickly reads cards whether under your control or that of a program; it keeps track of cards



as they are read; and it even prompts you for the next card. And if you wish, you can ensure "program security"—steps cannot be reviewed although the program can be executed.

As an added bonus, the HP-41C Card Reader also accepts program cards from the HP-67 and HP-97, automatically translating programs into HP-41C code.

Printer

The HP-41C Printer is a whisper-quiet thermal printer which easily plugs into the calculator. The printer gives you numeric, upper- and lower-case alpha, double-wide characters, character plotting, and an intensity control for optimum contrast and readability.

It even allows you to define your own "special" characters. The printer is completely portable and provides a valuable aid in editing programs or long calculations. You see everything at once, clearly, on tape.



Wand

The Wand permits you to load programs and data into the HP-41C quickly and easily. When plugged into one of the HP-41C ports, the Wand actually reads bar codes from a printed page, translating these codes into HP-41C program and data information and loading it into the calculator.

The Wand can load long programs into the HP-41C in a matter of seconds. The HP-41C Solutions Books and Users' Library Programs are available with step-by-step keystroke listings and will be available with printed bar codes. With bar codes the Wand makes it fast and easy to load a variety of inexpensive software. (Wand and bar codes available early 1980.)



Application Modules

Each preprogrammed Application Module transforms the HP-41C into an answer machine for a particular discipline; a specific calculator for specific needs. Every Application Module comes in



a Pac with a comprehensive manual, as well as a keyboard overlay. You simply install the module and overlay to put the combined problem-solving power of the HP-41C and the module's functions and programs to work.



A Whole New Standard

The HP-41C goes beyond a breathtaking list of functions and options to become a whole new standard in personal calculation. Its power, flexibility and ease of use are the result of a remarkable synthesis of the finest state-of-the-art developments and traditional Hewlett-Packard human engineering. And every facet of the HP-41C has been designed to contribute to the calculator's overall excellence.

The alphabetic notation, for example, is simple and straightforward. It permits you to label as many programs as you like with easy-to-remember names—a perfect complement to the huge program capacity of the HP-41C.

The keyboard, too, is simple and effortless to use, with only 58 important functions meeting your eyes. But with alphabetic execution, you have all 130 functions available for instant use in calculations, programming, or creating your own personalized keyboard.

Long-term battery life and Continuous Memory team up to keep the HP-41C poised and ready for action from the moment of your last calculation or entry—with no "start-up" or initialization required. You never have to reenter program steps, data, status, or key assignments because you were interrupted.

The plug-in peripheral and module devices augment all this power without compromising the portability of the HP-41C. And because you have complete flexibility of options, you can choose the solution that best fits your needs—now and in the future.

Ease-of-use features make power usable

For all its high performance, the HP-41C is perfectly balanced by ease-of-use features that free you to focus on solutions. In addition to the Hewlett-Packard click-action keys for positive tactile feedback, for example, the HP-41C calculator prompts you with a small dash in the display whenever an input is needed.



When you press a function key and hold it down, a word indicating the operation to be performed is previewed in the display. When you release the key, the displayed function is executed. This function preview helps ensure error-free calculations, whether you're using the HP-41C in normal mode or in your own, personalized User mode.

The HP-41C also contains a catalog function to help you monitor calculator capabilities. There are three catalogs. One displays all of the standard functions contained in the HP-41C, including the ones not normally shown on the keyboard. Another catalog shows the names of the programs you have written. The third shows information about the peripherals and modules via the calculator's four ports. Everything you need to know is there at the press of a key.

The Support Package

Every HP-41C is supported by an unparalleled range of accessories, software, and service. And each HP-41C blends innovative design and technological leadership with traditional Hewlett-Packard quality.

HP-41C Application Pacs

When you buy the HP-41C, you receive a new standard in customer support. Part of this support is in the form of Application Pacs that increase the ver-

versatility of the HP-41C and add to your personal decision-making potential. Included in these pacs are detailed manuals with examples, and miniature plug-in Application Modules that provide instant access to important solutions in your profession.

Choose from:

Aviation (Available late 1979)

- Flight Management
- General Aircraft Weight and Balance
- Determining In-Flight Winds
- True Air Temperature, Density Altitude, and Freezing Levels
- Great Circle Navigation
- Position by One or Two VORS
- Mach Number, True Airspeed and Other Conversions
- Standard Atmosphere
- Course and Speed Corrections
- Dead Reckoning

Clinical Lab and Nuclear Medicine

Clinical Chemistry

- Beer's Law
- Body Surface Area
- Creatinine Clearance
- Blood Acid-Base Status
- Oxygen Saturation and Content
- Red Cell Indices

Nuclear Medicine

- Total Blood Volume
- Thyroid Uptake
- Radioactive Decay Corrections

Radioimmunoassay

Statistics

- Basic Statistics
- Chi-square Evaluation and Distribution
- t Statistics
- t Distribution

Circuit Analysis

- General Network Analysis
- Ladder Network Analysis

Financial Decisions

- Compound Interest Solutions
- Internal Rate of Return
- Modified Internal Rate of Return (FMRR)
- Net Present Value
- Loan Amortization Schedules
- Depreciation Schedules
- Bond Price and Yield
- Days Between Dates

Mathematics

- Matrix Operations
- Solution to $f(x) = 0$ on an Interval
- Polynomial Solutions/Evaluation
- Numerical Integration
- Differential Equations
- Fourier Series
- Complex Operations
- Hyperbolics
- Triangle Solutions
- Coordinate Transformations

Structural Analysis (Available late 1979)

- Section Properties
- Beams
- Simply Supported Continuous Beams
- Settling of Continuous Beams
- Continuous Frame Analysis
- Steel Column Formula
- RPN Vector Calculator
- Reinforced Concrete Beams
- Concrete Columns
- Effective Moment of Inertia for Concrete Sections

Surveying

- Traverse, Inverse and Sideshots
- Compass Rule Adjustment
- Transit Rule Adjustment
- Intersections
- Curve Solutions
- Horizontal Curve Layout
- Vertical Curves and Grades
- Resection
- Predetermined Area
- Volume by Average End Area
- Volume of a Borrow Pit
- Coordinate Transformation

Securities

- Bond/Note Price and Yield
- Routines for Option Writers Using the Black-Scholes Evaluation Method
- Warrant and Option Hedging
- Yield on Call Option Sales
- Butterfly Options
- Bull Spread Option Strategy
- Convertible Security Analysis
- Convertible Bond Investment Analysis
- Stock Portfolio Valuation
- Bond Speculation Using Margin

Statistics

- Basic Statistics for Two Variables
- Moments, Skewness and Kurtosis
- Analysis of Variance (One Way)
- Analysis of Variance (Two Way, No Replications)
- Analysis of Covariance (One Way)
- Curve Fitting (Linear, Exponential, Logarithmic, and Power Curves)
- Multiple Linear Regression
- Polynomial Regression
- t Statistics
- Chi-Square Evaluation
- Contingency Table
- Spearman's Rank Correlation Coefficient
- Normal and Inverse Normal Distribution
- Chi-Square Distribution

Stress Analysis

- Section Properties
- Beams
- Simply Supported Continuous Beams
- Columns
- Mohr Circle Analysis
- Strain Gage Data Reduction
- Soderberg's Equation for Fatigue
- RPN Vector Calculator

Additional Application Pacs under development:

Games—Programs include calculator games such as Super Bagels, Space War, Submarine Hunt, and Biorhythms.

Home Management—Contains programs to assist in managing home budgets and personal finance. Programs include Home Budget, Annuities and Compound Amounts, Retirement (IRA or Keogh) Planning, and Stock Portfolio Valuation.

Machine Design—Programs for the Mechanical Engineer involved in design and analysis. Topics include Cams, Linkages, Gears, Springs, Vibrations, and Machine Geometry.

Navigation—Provides an integrated set of programs to solve the classic navigation problems of dead reckoning and celestial navigation.

Real Estate—Programs for the real estate investor including Internal Rate of Return, Depreciation, Compound Interest Solutions, and Income Property Analysis.

Thermal and Transport Science—Programs intended for Mechanical and Chemical Engineers. Topics include Gas Properties, Compressible Flow, Incompressible Flow, and Heat Transfer.

Application Pac titles and program listings subject to change without notice.

HP-41C Solutions Books

In addition to Application Pacs, HP offers a wide selection of Solutions Books complete with step-by-step keystrokes and listings to help provide you with answers to your general or specialized problems. By using the wand you can quickly read the bar codes and load your programs into the HP-41C effortlessly.

Choose from:

Business:

- Business Statistics/Marketing/Sales
- Home Construction Estimating
- Lending, Saving and Leasing
- Real Estate
- Small Business

Computation:

- Geometry
- High-Level Math
- Test Statistics

Engineering:

- Antennas
- Chemical Engineering
- Civil Engineering
- Control Systems
- Electrical Engineering
- Fluid Dynamics and Hydraulics
- Heating, Ventilating and Air Conditioning
- Mechanical Engineering
- Solar Engineering

Other Subjects:

- Calendars
- Cardiac/Pulmonary
- Chemistry
- Games
- Optometry I (General)
- Optometry II (Contact Lens)
- Physics
- Surveying

HP-67/97 Application Pacs

Because the HP-41C is compatible with the HP-67 and HP-97,* you may also choose from 10 Application Pacs written for the HP-67/97. These Application Pacs contain preprinted, prerecorded program cards to help save you programming time. And the "extra smart" card reader translates these programs to the HP-41C code without any effort on your part.

Business Decisions Pac—Programs selected from the areas of investment analysis, real estate, banking, leasing, securities, and statistics—areas which require rapid and accurate analysis of data.

CE Pac—Contains programs drawn from the fields of statics, stress analysis, and reinforced concrete.

Clinical Lab and Nuclear Medicine Pac—

Programs selected from the fields of clinical chemistry, nuclear medicine, radioimmunoassay, and statistics.

EE Pac—Programs from the fields of network analysis, network synthesis, transistor theory, and microwave engineering.

Games Pac—Designed primarily to provide entertainment and also to help teach principles of math, physics, and logic.

Math Pac—Programs selected from the fields of number theory, algebra, trigonometry, analytical geometry, calculus, and special functions.

ME Pac—Programs drawn from the fields of statics, machine design, thermal and transport science, and stress analysis.

Navigation Pac—A collection of programs deemed most useful to navigators. Programs are intended to answer the questions: "Where am I?", "Which way should I go?," and "How far is it?"

Stat Pac—Programs taken from the fields of general statistics and related areas.

Surveying Pac—Programs designed to solve many of the commonly encountered problems in surveying. Topics included are: reduction and adjustment of field traverse data, solution of curve and intersection problems, layout of curves, field data reduction, earthwork calculations, and coordinate transformations.

The Users' Library:

A Continuing Source of Programs

The Users' Library provides a selection of programs from contributors and makes them available to you. The programs from the library may be used as a source of programming techniques in your application area.

Excellence by design

Hewlett-Packard calculators are designed with uncompromising quality, innovative design, high-quality components, and precision assembly.

Hewlett-Packard products are manufactured by Hewlett-Packard worldwide.